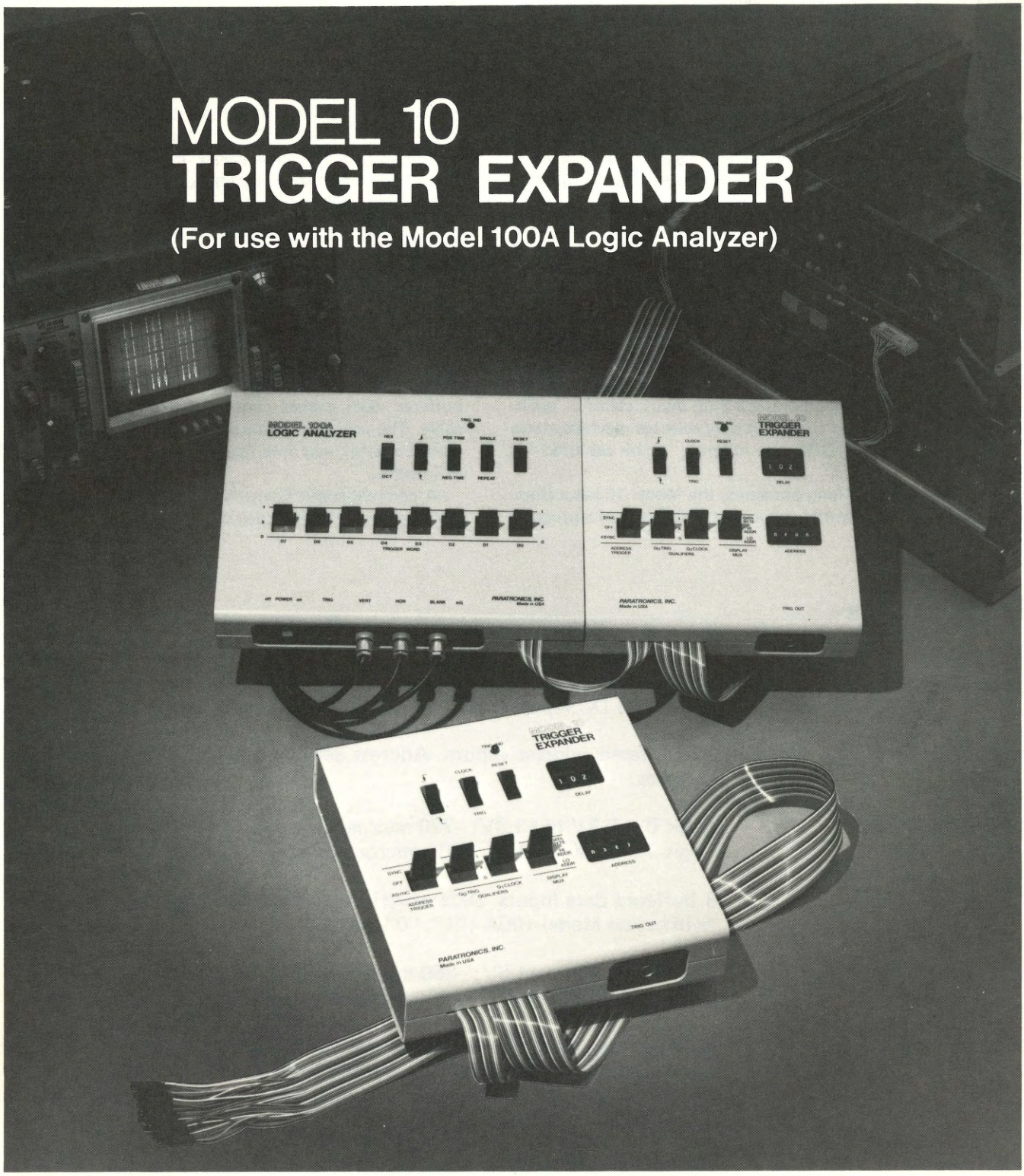
MODEL 10
TRIGGER EXPANDER

(For use with the Model 100A Logic Analyzer)



Features:

- ☐ LOW COST: PRICE AND PERFORMANCE OF MODEL 10/MODEL 100A COMBINATION IS UNBEATABLE
- ☐ EXPANDS MODEL 100A TRIGGER AND DISPLAY CAPABILITY
- ☐ PROVIDES DIGITAL DELAY AND QUALIFICATION OF INPUT CLOCK AND 24-BIT TRIGGER WORD
- ☐ MATES WITH MODEL 100A TO BECOME SINGLE, INTEGRATED INSTRUMENT
- ☐ USES BUFFERED INPUT CIRCUITS: FULLY COMPATIBLE WITH POPULAR LOGIC FAMILIES

PARATRONICS, INC.

Model 10 General Description

The Model 10 Trigger Expander mates with the Model 100A Logic Analyzer to provide one of the most powerful computer development, maintenance, and training tools available. The Model 10 adds 16 bits of additional triggering and display capability to the existing 8 bits of the Model 100A. For most microprocessor applications, these extra 16 bits can be used to trigger on the address bus, while the remaining 8 bits can be used for the data bus. In this configuration, the Model 10/ Model 100A combination provides a comprehensive picture of the microprocessor's operation through a 16-word deep truth table display of the lower address byte, the upper address byte, and the data byte. These tables can be viewed one at a time utilizing a 3-position switch on the Model 10 which multiplexes the 24 bits on the Model 10's input probes into the Model 100A's data memory.

The Model 10 also incorporates a 25th input, called a "qualifier," which can be used to permit only selected machine states – such as READ or STORE operations – to be captured for display.

For paging through long programs, the Model 10 has a clock delay feature which permits as many as 1000 steps of a program to be examined without changing the reference trigger word. Or, if it is desired to display the state of the machine after "n" passes through a loop, the Model 10 provides this capability as well.

The Model 10 conveniently mates with the Model 100A through an optional baseplate so that the two units become a single integrated instrument. Electrical interconnection is provided using a flat ribbon cable which plugs into the Model 100A's input socket.

The Model 10 can also be used in a stand-alone mode as a 16-bit "Word Recognizer." This mode is particularly useful for those applications requiring an oscilloscope sync pulse for troubleshooting events occurring at (or delayed from) a particular machine state.

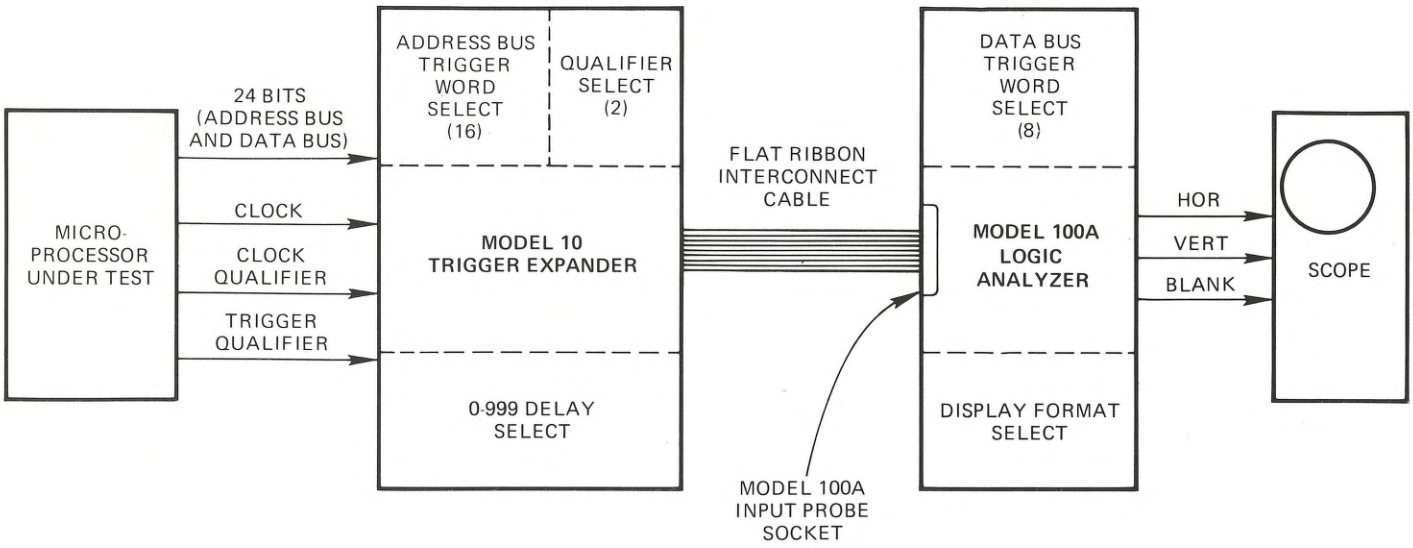
And like the Model 100A, the Model 10 incorporates fully buffered data probes constructed of color-coded flat ribbon cable. The probes are terminated in gold-plated "universal" pin connectors for easy interfacing to wire-wrap pins, IC clips, and E-Z hooks.

A comprehensive Owner's Manual with detailed applications information is also included with each unit.

Specifications

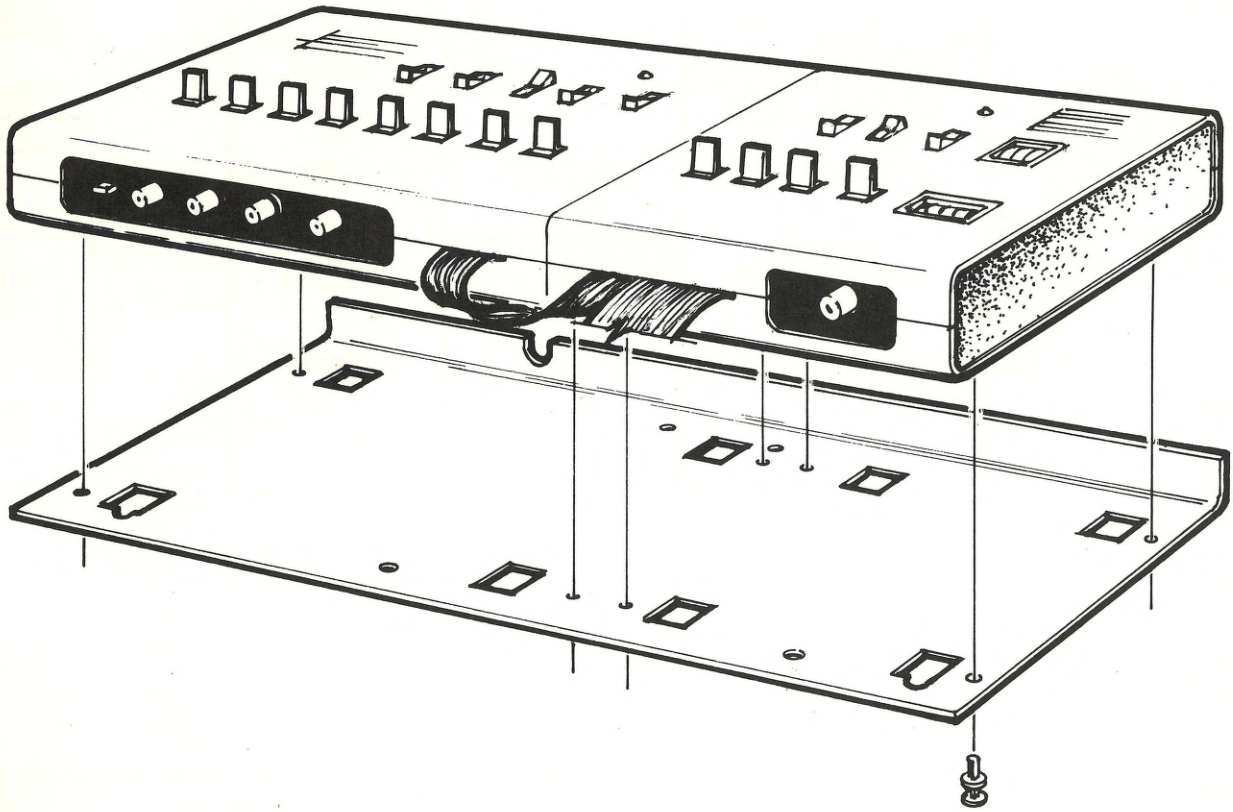
Scope Requirements:	Any laboratory or field oscilloscope with 100 KHz bandwidth and an external Horizontal (X) input. A blanking input is useful but not mandatory.
Address Triggering:	16 buffered address inputs. Address selectable with 4-digit HEX thumbwheel switches.
Address Input Load:	Logic 0: –0.5V to +1.6V; –720 microamps max. Logic 1: +1.6V to +15V; +200 microamps max.
Data Word Triggering:	8 buffered data inputs. Data word is selectable from eight 3-position trigger word switches on Model 100A ("1", "0", or "X").
Data Word Load:	Logic 0: –0.5V to +1.6V; –360 microamps max. Logic 1: +1.6V to +15V; +100 microamps max.
Display Multiplexing:	Provided by 3-position switch which multiplexes the upper address byte, the lower address byte, or the data byte into the Model 100A's data memory. This feature permits the viewing of 3 individual 8 x 16 truth tables without moving the Model 10 input probes.
Input Clock:	Positive or negative edge triggering.
Input Clock Load:	(Same as address input load.)
Address or Data Hold Time:	0 ns after active clock edge.
Address or Data Set-Up Time:	25 ns before active clock edge.
Clock Qualifier:	Permits READ, STORE, I/O and other selected operations which are associated with a particular clock to be collected for display. Controlled by a 3-position switch ("1", "0", or "X").

Typical Application



Address Qualifier:	Permits machine states associated with a particular address to be collected for display. Controlled by a 3-position switch ("1", "0", or "X").
Qualifier Load:	(Same as data word load.)
Digital Delay:	Selectable by a 3-digit thumbwheel switch (0-999 events).
Delay Modes:	CLOCK (for paging through 1000 program steps); and TRIGGER (for permitting the machine to loop up to 1000 times before display).
Address Trigger Modes:	SYNCHRONOUS, OFF, or ASYNCHRONOUS.
Trigger Output:	Auxiliary TTL pulse which occurs when valid trigger word is detected. (This is main output for stand-alone operation.)
Trigger Indicator:	LED on Model 10 indicates that unit is waiting for valid trigger to occur.
Input Probes:	Multi-wire, color-coded flat ribbon cable terminated in gold-plated "universal" pin connectors.
Model 100A Connection:	16-pin flat ribbon cable from Model 10 plugs into Model 100A input probe socket (field installable).
Power:	Model 100A provides power through above cable. (+5V @ 300 milliamps when used in stand-alone mode.)
Mounting:	Optional baseplate permits Model 10 to be mechanically mated to Model 100A so that the two units become a single, integrated instrument.
Weight:	3 pounds.

Optional Baseplate Mounting



Ordering Information

MODEL 10 KIT $229.00
90 day parts warranty

MODEL 10 ASSEMBLED $295.00
1 year warranty on parts and labor

Above items include Comprehensive Owner's Manual

Optional Model 10/Model 100A Baseplate ..... $ 9.95

Separate Model 10 Owner's Manual ..... $ 4.95

Prices subject to change without notice.

SHIPPING & HANDLING:

U.S. ORDERS—Subject to local stocking representatives' shipping & handling charge.

FOREIGN ORDERS—Add 10% for shipping and handling.

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